ABSTRACT

Disclosed is a rate-based multi-level Active Queue Management with drop precedence differentiation method and apparatus which uses traffic rate information for congestion control. Using a nonlinear fluid-flow model of Traffic Control Protocol, an integral controller in a closed-loop configuration with gain settings characterized for stable operation allows a matching of the aggregate rate of the active TCP connections to the available capacity. Further disclosed is a method for calculation of the regime of gains over which stable operation of a given network obtains. An enhancement of the basic algorithm p rovides t he a bility t o d rop l ow-precedence packets i n preference t o h igher precedence packets. This approach allows for a rate-based AQM approach for application in a differentiated service environment.